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Structuring Possibilities in the Classroom

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Structuring Possibilities in the Classroom:

Evaluation of a Prescriptive Instructional Reform Program for an Impoverished Educational Environment

Conrad Wesley Snyder, Jr.

Abstract

The Namibian Basic Education Support (BES) Project undertook the monumental task of creating and implementing a new grade 1-4 instructional program in mathematics, environmental studies, and local languages' literacy in less than five years. Little time, few resources, almost no local technical talent, weak leadership, and general resistance to the idea of *Systematically-Designed, Structured Instructional Materials* (SIMs) characterized the reform environment. The scripted SIMs were aimed at improving teacher and instructional effectiveness in contexts typified by under-educated and under-qualified teachers and resource-poor instructional programs. Evaluation results indicated that SIMs helped teachers in their classroom methods and produced higher student attainment in mathematics and environmental studies in grade 1 and grade 2. Because SIMs was considered inconsistent with reigning interests and ideologies by key central authorities, this effective reform will be ignored in the near future. In a highly politicized environment, specific reforms can be intentionally planned as *strange loops*.

Keywords: educational reform, curriculum and instruction, educational development

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In a remote school of northern Namibia, a teacher reads over his scribbled lesson plan as he prepares for a grade 1 mathematics class of young children. These youngsters have trekked a considerable distance to be part of the schooling process. The students come, in part, because they are sent. They have little idea what a school is, and their life includes few books, little if any reading materials of any kind, and generally bland and impoverished intellectual encounters. Schooling offers few additional resources. The bleakness is a legacy of a central policy, labeled *apartheid,* which left these rural schools without resources and intentionally wasted many young lives. Schooling is an alien environment to these new students. In rural communities, the new school buildings provided by a reform government are exceptional structures, and there is little doubt that schooling represents a new world for which these youngsters have few mental scripts. New experiences are not always comfortable but the company of other children offers what recompense there is. Schooling is a social setting fractured by mind-numbing intrusions that bear little relationship to this local world. What chance does a child have for societal contribution or personal success from this background?

The problem is exacerbated by the fact that the rural teacher is probably unqualified, having little and possibly no pedagogical training, and comes from the same impoverished environment with too few schooling years to introduce much variation in this daily undertaking. Regardless of the form of mass schooling, the teacher is a key feature in the contrived learning process. Children learn a great deal on their own within their narrow realm but schooling must create and channel experiences to ensure a wide range of content and cognitive processes for the student. Teachers play a critical role in the direction of classroom activities. No matter what approach is adopted, teachers remain a key to success. In northern Namibia, teachers take their role very seriously even if they have little idea how to expand the possibilities and little support to do anything else.

There is a clear idea in the minds of professionals in northern schools of what schooling is about, and what it means in terms of content, instruction, and expectations. Education in this context is not part of the child's life in the village. It reflects the meanings and values of a wider national or even, world system, and this system has more resources to offer than the impoverished local one. Education has great instrumental value in this conception and is carried out in appropriate ritual fashion to amplify its importance and its difference—it is not something linked to local experience and there is no intention that it should serve that local environment. The idea is to escape local impoverishment and lead a different, idealized life outside the rural context.

Modernity proscribes the importance of the individual. Instructional programs are to enhance the development of the individual and ensure the smooth transition of individual

development. However, something happens between the modern rhetoric of child centeredness and the actual practice of teaching. In its ritualized form, the teacher must occupy sufficient status to convey the value of the undertaking. This means that the teacher cannot yield to democratic notions of equality in the classroom, nor fully attend to individualized needs. There is some attention paid to the child's requirements but the teacher carries out the activities in traditional teacher-centered style. Thus, neither the child nor the teacher fully experiences a modern education. They participate in its trappings but do not touch its essence, and the result is a shallow set of experiences and a continuation of rote learning at best. This abortive agenda supports neither the society nor individual growth and development. How can the teacher be helped to alter this bleak educational context?

Background

The impoverishment of the northern Namibia was largely the result of neglect and the severe lack of external resources. In order to redress the inattention of the past, the Ministry embarked on Lower Primary Reform in 1995. The hope was to equip all schools with adequate materials and facilities, and thus, enable the enhancement of children's skills and knowledge needed to take advantage of further education. Many children in Namibia have excellent schools in the urban centers but the differences among schools are dramatic. In the north, the schools were particularly underdeveloped and under-financed, and since most of the school-aged children of the country reside in these northern regions, the provision of education has been inequitable. These schools have also had poorly qualified and under-educated teachers for most of their history. With the establishment of the National Task Force on Lower Primary Reform and the creation of the Basic Education Support (BES) Project, attention was drawn to the needs of schools in the northern regions of Namibia.[1]

Materials and textbooks were distributed to all schools in 1996 to promote better instruction. These materials were funded by the Ministry, and their purchase and distribution used all the funds designated for reform over the five-year purchasing cycle. The Basic Education Support Project was designed to focus on the support of the northern schools, beginning in the Ondangwas. At the lower primary level, materials were translated into the local languages used in the schools and communities. The first year of materials from BES was introduced in grade 1 in January, 1997. Therefore, the BES materials were supplements to the reform materials distributed to grade 1 in 1996. The Ministry had also provided training for the reform materials before the BES training took place. BES did not constitute the reform alone but rather was an addition for the northern schools in order to help them deal with the effects of years of neglect.[2]

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[1] For a summary of activities under the Lower Primary Reform, see P. Swarts, Keynote Address, *Future Directions of the Lower Primary Reform in Namibia: Placing the BES Project in Perspective,* Basic Education Support Project Conference, 16-17 November, 1999. Available from the American Institutes for Research.

[2] This wasn't intentional. The BES Project should have started with the reform but the process was not timed correctly and the contract for services wasn't awarded in time to develop materials for grade 1 as the reform was implemented. This created many problems and ambiguities because BES was different than the reform program in so many ways and now was also out of sync at every grade level where reform was attempted.

The BES approach to instructional reform had been selected from a wide range of possibilities in the bidding process. Key local professionals were fully involved in the process of selection. It was later clear that they were not competent to make judgments in this area and had no idea of the implications of selecting an instructional systems design approach, even though they had experience with ISD in an earlier project. The involvement of local professionals does not guarantee either compatibility or ultimate support for a reform agenda.

The first year of BES materials were produced by teacher-writing teams. Their cost was high and their translation and production ran into many problems. The training for the BES program was on the school-readiness materials especially prepared for the north. Subsequent introduction of materials, which rolled off the production presses and out to the schools just as they were needed in the instructional timetable, was not supported by additional training. Teachers had the general training from the reform in 1996 and the BES introduction to readiness materials prior to the 1997 school year. This was minimal training (about two weeks, which is usual for initial training for reform), and the hope for success with the BES materials relied on the structured format of the instructional materials produced under BES. The reform textbooks were structured as well, but not systematically, and they were usually the result of a single author or a concoction of apparently relevant material culled from other published works to meet production timelines. Both the reform materials and the BES materials were produced before the formal grade 1 syllabus was completed. The introduction of BES represented a trial of the approach using *systematically-designed, structured instructional materials* (SIMs). With the additional structure and the detailed lesson plans, the materials were nearly self-instructional.

Both the reform and BES had numerous teething problems in this first year. A major concern was the apparent differences between the SIMs and more traditional instructional materials. More troubling was the apparent philosophical differences between the SIMs approach and the more constructivist, learner-centered approach adopted by the National Institute for Educational Development (NIED). In the first case, the SIMs materials were highly structured, and there was the fear that teachers would feel constrained by the materials. In the second case, the structure of SIMs arises from a behaviorist tradition that appeared counter to the aspirations of the new reform. Neither concern proved to be very important to teachers. Theoretical inconsistencies and ambiguities cleared in light of practical advantages and many of the traditional elements of ISD were compromised by eclectic curriculum development approaches adapted by the BES team to meet local needs.

Systematically designed instruction was developed by Gagné and his followers in the early 1960s.[3] In this approach, instruction had to be carefully planned so that each instructional event would facilitate a specific learning outcome, and each learning outcome would require a different kind of instructional event. Instructional design begins with needs assessment so that the learning agenda is clear, and this enables a task analysis

[3] There are many forms of ISD. Gagné's approach has been the most consistent, well-researched, and served as the base for the BES approach. BES included many adjustments and modifications gained over the years by the Institute for International Research team, notably Aida Pasigna.

to lay out exactly what needs to happen for the goals and performances expected. The instructional materials, therefore, provide "sequence of steps—a sequence of transformations of information from one form to another. Thus this model conceives that learning is a step-like series of processes. All of them may occur in a few seconds, but they nevertheless constitute several identifiable stages." These internal processes are supported and influenced by the external processes designed into the instruction. [4]

The SIMs approach can be illustrated by taking the mathematics case. Competencies were established for the national syllabus. Objectives were drafted for these competencies, and the scope and sequence of the objectives was arranged to maximize achievement of the objectives for each grade. The objectives were developed through a task analysis. Each competency was examined to determine the lesson objectives that would be necessary to reach the competency, and an analysis of the sub-tasks was undertaken to determine the sub-objectives that would be required. The work goes from simple to the complex skills, revisiting skills that require continuous attention for mastery, such as operations, measurement, graphing, etc. Various sources informed the process of determining the scope and sequence of instructional events: materials from Ghana, Swaziland, the existing materials in Namibia (e.g., *Maths for Life* and the Florida State University materials for junior secondary), and mathematics' textbooks from the United States. In the end, the objectives for each year were culled from a process of reviewing these sources, generating a list, and logically sequencing them for the SIMs. Lessons are developed for each objective, with approximately 4-5 lessons for each week of a term. Each lesson completely specifies the resources required, the intent, the procedures to be followed, and continuous assessment advice, as well as remediation and enrichment suggestions.[5]

Although all SIMs at the lower primary grade levels are based on this model, the materials have been modified considerably, especially after the first year of project work. SIMs did not follow the hierarchical model of Gagné and for the most part, did not emphasize the sequential aspects proposed by a behavioral analysis. The materials were much more open and cognitive in approach, drawing from recent curriculum development ideas and materials in the subject areas selected for BES (namely, mathematics, and environmental studies, as well as local language, although this latter subject was not evaluated because of substantial translation problems and variances in orthography). Following the procedures of systematically-designed materials, the instructional materials and teacher's guides of BES present detailed instructional content and teaching procedures to guide the activities in the classroom. Because the instruction is 'structured' and predetermined by the designer, the teacher has greater support in the teaching process and is guided in detailed fashion through the lessons. The hope was that a teacher would, in fact, become 'trained' as a result of this exposure to a 'proper' instructional approach. Instruction is not left to the creative powers of the teacher or the emergent qualities of the class. The structure ensures that certain experiences occur, the instructional events are

[4] Robert M. Gagné, *The Conditions of Learning and Theory of Instruction*, 4th ed. (New York: Holt, Rinehart and Winston, 1985), p. 11.

[5] Paul F. Cook, *Final Report on Basic Education Project in Namibia* (Windhoek, Namibia: Institute for International Research, November, 1999).

broad, and all children get the opportunity to have these experiences, even in resource-poor environments. At the same time, the teacher gains the experience of taking part in this process and learns something about the pedagogy that underlies these experiences. Teachers build their basic teaching practice skills in the process and their confidence grows with guidance provided.

There have been a number of variants of SIMs used around the world, and versions at the lower primary level are currently in use in the United States, particularly for impoverished environments.[6] Overall the SIMs approach approximates good curriculum development but at a much lower cost for materials production than other approaches. In some cases, particularly where curriculum development is not sophisticated, SIMs-like materials result in better test performances. In the case of Namibia, BES was a support project—in that regard, SIMs was not used solely.[7] To return to the mathematics case, teachers continued to use *Maths for Life*, the reform materials provided by the Ministry before SIMs materials were available. The textbook is used by some teachers to supplement SIMs because it contains many activities that are useful for review and practice.

The 'fit' of SIMs with the reform materials is not without many difficulties. In the case of *Maths for Life*, the textbook is not broken up into skill areas but integrated across topics, with instructional activities repeated in spiral format throughout the year, and reflecting a strong constructivist orientation. Each lesson had multiple objectives as a result of the integration. Reports on the textbook were that teachers and learners were confused. SIMs had one objective per lesson, and supplementation of SIMs by the text was recommended only for those teachers who felt comfortable with the more complex design of the textbook instructional approach. An objection to the SIMs approach is its simplicity and its unlikely relation to complex human learning. The simplicity turns out to be an advantage in the impoverished environment in terms of likely implementation and clarity of that implementation.[8]

Differential skills among teachers remain a central concern in all mass education systems. All learners should develop so that they are not disadvantaged by a set of bad experiences due to inadequate instruction. The SIMs approach is intended to standardize educational experiences. Again, this is both an advantage and a disadvantage—the approach is rigid and does not cater easily to the emergent qualities of a classroom. In the emergent classroom, the experiences are determined by the flow of activities and the creative

[6] The closest relative of SIMs in the USA is the Direct Instruction Model developed by Siegfried Engelmann. His work focused on reading, language, and math, and was published in 1968 as DISTAR (Direct Instruction System for Teaching and Remediation) by Science Research Associates. This approach is currently used by about 150 schools in the USA. Its training costs run approximately $65,000 per year per school, plus about $125 per student for materials. Direction Instruction is highly prescribed, fast-paced, highly interactive, and requires about 3 years for schoolwide implementation in all curricular areas. The program is highly successful. Comparative evaluations have found it to be one of the most effective instructional models available, when assessed by traditional tests. And some evaluations have identified lasting effects through secondary school. See the *Catalog of School Reform Models*, Portland, Oregon: Northwest Regional Educational Laboratory, August, 1999 (or use the internet to find the Lab area: http://www.nwrel.org/scpd/natspec/catalog/directinst.htm).

[7] In fact, SIMs was used only by the project and project-trained personnel. It was never incorporated in any fashion into the National Institute for Educational Development activities.

[8] Paul Cook, *op cit.*

capacities of the teacher and learners. In SIMs, the experiences are predetermined by the instructional designer. Of course, not all contingencies can be anticipated and classrooms using SIMs vary accordingly, but the general flow and specific undertakings are pre-specified so that all learners at least come into contact with a similar version of each lesson. The extended hope is that the teacher will learn how to structure events so that the activities in these lessons can be enhanced and the activities in other subjects will reflect the training and increased expertise in teaching practice.

To augment the materials support, the BES Project added the Teachers' Basic Competencies Manual (TBCM), a set of 20 lesson modules for teachers on teaching practice. These materials were generated from a different perspective than SIMs, and were more closely allied with the general constructivist philosophy of NIED and the teacher training colleges in Namibia. The Manual eventually became the curriculum for the Instructional Skills Certificate, a pre-qualifying certificate for those teachers at the lower primary level who did not qualify for the Basic Education Teacher's Diploma (BETD). The ISC is a one-year Pre-BETD inservice teacher education program specifically targeting unqualified lower primary teachers. The TBCM materials were supplemented by circuit Peace Corps volunteers who helped teachers prepare for the ISC, ran general workshops on teaching, and helped on any instructional problems, including SIMs related questions. There were some inconsistencies between the TBCMs and SIMs but these were not usually problematic in practice.

The general Lower Primary Reform followed changes in the junior secondary and upper primary programs (supported in part by the USAID-funded NPA program, from which the Namibian Ministry created the Basic Education Reform Project, run by the Florida State University's Learning Systems Institute). As happens in all instructional reforms, necessary changes are constant and never-ending. Changes reflect the complexities of society's needs and the various perspectives that underlie priorities. Specific objectives for lower primary were not available when the project began. In fact, the reform materials and training that preceded the project by one year were based on approximations of the eventual grade objectives. Publishers cooperated by putting together materials very quickly in time for distribution to the schools for the initiation of the reform. SIMs followed the next year, but the competencies for grade 1 instruction were still not finalized and these first materials were also approximations of the grade 1 intentions. The implemented materials no doubt influenced the eventual set of competencies.

Another important feature of the reform was the change in SIMs development that occurred after the first year. The initial SIMs materials were developed by teachers, who were pulled out of the classroom, provided with training, and then worked in task groups to produce materials. Time out of class was minimal for instructional design but far too much for the instructional program. Another process needed to be used. Teachers also designed the TBCMs but they participated in the macro design only and then the materials were developed professionally and subsequently reviewed by users. Given the acceptance of the TBCMs, a similar strategy was employed in the development of SIMs. Some of the grade 2 materials were already available from earlier workshops. Their revision and editing was done by technical assistance, working with evaluation results from grade 1 and oriented toward opening the materials for higher order thinking

instruction. Later grades were developed from a modern perspective and included many different kinds of instructional experiences, although all prescribed, but many alternatives from which to choose. In all cases, teachers reviewed the materials after they were drafted to check for cultural and contextual suitability. Unfortunately, the low priority attributed to the SIMs program in the total reform, as well as limited staffing and funding, led to a de-emphasis on monitoring and evaluation of the SIMs interventions so little or no information is available on the effectiveness of these more advanced materials.

During the SIMs work, the Ministry suffered from many job freezes, extensive organizational change and adjustment, and changes in leadership and management. Although NIED was fully involved in the selection of SIMs as an approach to remediation, the organization intentionally focused efforts elsewhere and invested very little in either participation in BES or in training associated with instructional design. Again, personnel were few and inexperienced, and the macro reform required their full attention. The Director of NIED listed the many challenges that confronted the reform:

- Expertise was limited, with insufficient training and experience (particularly in computer skills, limited English language capacity, minimal mathematics knowledge, lack of induction, job descriptions, etc.).
- Limits to training time (only 2 weeks available for the general reform changes in content and methodology).
- Insufficient staffing (just not enough personnel for the reform).
- Lack of policy and guidance from the Ministry.
- Lack of implementation mechanisms for key elements of the program (notably the ISC/TBCM program).
- Poor coordination with the private sector to ensure quality materials and appropriate interactions.
- Lack of coordination between the various elements of the reform program.

Nevertheless, the reform was widely considered a worthy effort and many successes are attributed to the changes in the system.[9]

The inability of NIED to focus on the BES Project meant that the development of SIMs and the training related to SIMs almost exclusively involved teachers, inspectors, and advisors from the regions. The original plan to involve teachers in the development process so that their own teaching practice would improve simultaneously proved to be too costly in time and finances. Even with the shift to professional development of materials, approximately 100 BES trainers remain in the regions. They know SIMs very well. Other expertise developed during BES has been lost to NIED. All of the development, translation, and training staff at NIED were dismissed when project financing ended. It remains doubtful that this instructional design and development expertise will ever be used again.

Sustainability is always an issue in development projects. Its importance is probably overstated because so few institutional reforms remain in place in rapidly changing

[9] P. Swarts, Keynote Address, *Future Directions of the Lower Primary Reform in Namibia: Placing the BES Project in Perspective*, Basic Education Support Project Conference, 16-17 November, 1999.

contexts. BES is no different. The institutional impact has been minimal and will not be sustained intentionally. The SIMs materials, as well as supplementary materials from the TBCMs and continuous assessment (CAMs), were considered remedial instructional inputs to the impoverished schools of the north. Once remediation took place, the intention was to instill a national program that would be standardized across the country. SIMs, in fact, had to overcome an initial concern that the approach was akin to those used in apartheid—that is, separate materials for different places in Namibia. The regions targeted in BES were identifiable with specific ethnic groups. Their schools were the most impoverished by apartheid, but the remedy to treat them differentially, although technically necessary, reinforced old feelings of separateness and inequity. Initially, other projects, advisors, Ministry officials, and even participating Peace Corps volunteers were antagonistic to the differences and approach of SIMs. It was the adoption of the materials by teachers that led to wider acceptance of SIMs as an appropriate remediation strategy. Also, positive evaluation results silenced much formal opposition but no evidence or attitude change altered the view of SIMs that it was essentially a remedial program that would be used in schools and for teachers who needed the additional assistance. Once qualified teachers were in place the need for this remedial program would be minimal and it would be replaced with a national curriculum and standardized materials, all promoting a constructivist instructional strategy operating with a fully professional teacher cadre.

Expectations that SIMs and its supplements can remediate years and years of abuse and neglect are exaggerated. One of the reasons for this rhetoric is that BES fulfilled an important political requirement that immediate attention be given to the northern schools. Accompanied by other projects, BES contributed to the feeling that something was being done to make up for the past. BES advisors and financial support was provided to the general reform as well. At times, the reform training and materials would have suffered or been delayed without the assistance of BES resources. The general impact of BES, its advisors and the PCVs, is sometimes overlooked. BES was larger than SIMs and its contribution was always compatible with the wider intentions of the Ministry.

The specific successes of BES will disappear soon from the national agenda. It is more likely that the impact of BES I and the eventual contributions of BES II will reside in the regions and schools of the north. BES was almost a school-based intervention that addressed the specific problems encountered in impoverished programs. Interestingly, its advantages were widely recognized in the schools and ‘qualified’ teachers rapidly utilized SIMs, either directly or as important supplements in the instructional program. Since the regional offices and the local schools were decoupled from national institutions, the debates on philosophy or approach were less invoked than the practicalities and usefulness of the SIMs materials, the richness of the TBCM materials, and the general advantages of having a PCV in the circuit. BES was very popular at the grassroots of the reform. The materials and the training will remain the legacies of BES I, and in that sense, the intervention will be sustainable, even if not an active or evolving part of the reform program.

Strategic Objective

BES I was based on the general strategic objective to improve the schools in the north that were ravaged and/or neglected by years of apartheid.

> Improve the quality of primary education for Namibian learners in grades 1-4 in the most disadvantaged schools.

Two specific targeted achievements were intended for BES:

- Improved teacher effectiveness (for those under-educated and under-qualified), and
- Improved instruction at the lower primary level in needy schools in the north.

A third minor targeted achievement was added later in the project:[10]

- Improved macro monitoring and evaluation system, with specific attention to the BES intervention.

The first target was operationalized in terms of new materials for teacher inservice training, initiation of inservice training specific to the needs of the north, and improved instruction that would generalize across subject areas (namely, the structured materials of SIMs). The second target was operationalized in terms of new instructional materials (that is SIMs) linked with continuous assessment materials (CAMs). The third target was operationalized in terms of training materials, long-term training for a wide range of Ministry professionals, and publication of monitoring and evaluation studies.

In order to provide continuous support to the BES interventions and ensure implementation of SIMs, an interagency agreement between USAID and the Peace Corps was inaugurated with BES. Peace Corps recruited volunteers with teaching experience to provide locally available assistance to clusters of teachers in the north. These PCVs were graduates of teacher education institutions in the United States and had varying degrees of classroom experience. For example, for the first 27 volunteers, 24 were trained teachers but only 3 had extensive teaching experience. New volunteers were recruited under more general guidelines because additional trained teachers were not available in the Peace Corps pool. Ironically, the earlier trained teachers were highly resistant to the use of SIMs. They were exposed to new methodologies in the United States, and they did not believe that SIMs represented the best approach. Their antagonism did not diminish use however. Teachers needed the additional structure, and eventually many of the PCVs were supportive of the program, including the following comments:

- Easy to follow instructional program,
- Provided all the materials and structured lessons so that teachers who wouldn't make their own materials or don't have time to do it, taught according to SIMs,

[10] The primary targets of BES were controversial because of the structured approach and philosophy of SIMs/CAMs. But the third target was widely misunderstood, significantly under-financed, and virtually unstaffed. As planned, the monitoring and evaluation of BES was the responsibility of the Peace Corps, with collection and initial processing of results by an implementation technical advisor in the north, and then final analysis carried out in the central Ministry under the auspices of the Chief-of-Party for the project. The early history of BES was marred by misunderstandings, miscommunication, misapprehensions, and technical delays. When sub-contracts with Ohio University and the Harvard Institute for International Development were added to the prime contract with the Institute for International Research (IIR), the intention was to improve efforts in continuous assessment and monitoring and evaluation, as well as change the climate for work on the BES Project.

- Keeps teachers on task and helps them get through the syllabus in a logical fashion, and
- Because lessons are planned out, classroom management is improved. [11]

Later volunteers had less teaching training or experience. They 'learned' pedagogy from the SIMs materials and training, and they were, accordingly, much more supportive. Teachers did complain that these volunteers were not as qualified as the teachers they were helping, and there was occasional concern about their lack of experience, expressed in formal statements in the BES Steering Committee by the regional officers. However, the new volunteers brought a wide range of other experiences and considerable familiarity with modern education systems. Teachers attended their classes and tried to cover the material, inspired in many cases by the presence of the volunteers. The volunteers became an important support for their circuit teachers. As one volunteer was told: "You showed us how to help ourselves. Now we talk to each other and help each other." Volunteers help the teachers:

- Focus on teaching methodologies—making the classes more learner-centered.
- Help on subject content knowledge (e.g., what's literacy and how to teach it).
- Assistance in using new materials (i.e., SIMs and others).
- Implementation of Ministry initiatives—continuous assessment, alternatives to corporal punishment, school management, principal training.
- Help on distance education courses (e.g., BETD and ISC).
- Support English language acquisition and practice (i.e., run weekly English courses).

As a volunteer summarizes:[12]

> Whether I am in the classroom doing observations, facilitating after-school workshops, arranging more intensive 3 or 4 day workshops, or participating in regional training, the focus is the same—improving and upgrading teachers' skills and qualifications; helping teachers to understand the art of truly teaching.

The formal strategic objective statement, the targeted results, and the constant support of the volunteers provided the direction and vision for the project. BES technical assistance and SIMs developments were far from the teachers. PCVs kept the objective in view and related its importance to the teachers. For teachers, SIMs was only one way to the objective. Various approaches and materials were available, sometimes too many options existed and compatibilities were suspect. The objective was to improve the quality of schools by any means available. Reines (1999, p. 39) characterized what confronted a mythical rural primary school.

> Meme Auguste, the principal, wants to improve the school's relationship with its School Board, but she has no real experience with school board

[11] Joclynn W. Snyder, and Demus K. Makuwa, "Systematically, Designed, Structured Instructional Materials: Initial Perceptions of SIMs during the Implementation Phase" (Chapter Four), in *Inside Reform: Policy and Programming Considerations in Namibia's Basic Education Reform* by Conrad W. Snyder, Jr., and Friedhelm G.G. Voigts, eds. (Windhoek, Namibia: Gamsberg Macmillan, 1998), pp. 187-212.

[12] Tracy Reines, *Working in the BES Project*, Conference Report. (Windhoek, Namibia: Basic Education Support Project, November, 1999), pp. 38-41.

> training, no contact with her neighboring school to ask for input, so she ends up doing nothing. Meme Ndapewa, a grade 4 teacher receives the fancy, freshly printed SIMs materials but doesn't really use them in her class much. She says that she still doesn't understand what strategies, remediation, or signals are. She is directed to get help at the Teachers' Resource Center in Tasandi, but she doesn't go because she doesn't know what a TRC is because she has never heard of it before. Tate Ignatius, a BETD candidate, is trying to complete his assignment and he asks a colleague for help. Her idea of helping him is giving Ignatius her assignment to copy. Meme Leena is a grade 3 teacher and attends a Ministry workshop on continuous assessment. She learned a great deal of useful information, and uses it in her class, but the information stays only with her, and she does not think to share it with her colleagues who also need help. Finally, beautiful new natural science kits with radios, maps, magnifying glasses are given to Oshana Primary. Unfortunately, they sit dust covered in the corner, sitting on top of the 100 library books the Ministry sent out last year…. Whether it is in the form of in-class observations and feedback, identifying community resources, assisting with distance education courses, encouraging teacher facilitated workshops and sharing information, or incorporating new materials and methods in the class, the BES volunteer often fills that role.

The volunteer becomes the agent of modernization and the embodiment of the strategic objective for school improvement. Most volunteers only want to 'fit in' and have a rewarding cultural experience. BES affiliation attaches more systemic responsibilities to their situation. Each became the project person at the site where improved quality is targeted. Little is known about the effectiveness of this approach but little planning went into the sustainability of leadership or support that is implied in this strategy. Low cost was an attractive lure to secure long-term support for the intervention. Once secured, it was hoped that SIMs would be self-sustaining, carried on by the momentum of its success. The BES project attempted to enhance the principal's knowledge of and role in the reform through training and constant support. It remains to be seen if effective management and leadership emerge within the rural schools of the north. Only with such leadership will reform succeed in yielding effective schools.[13]

Teacher Effectiveness

BES was assigned to remote schools, which had recorded unqualified teachers, had limited resources, but were not receiving other assistance. Early identification was based on EMIS data. Unfortunately, that proved inaccurate at the school level[14] and regional officers had to make the final designations. From EMIS, the pool of teachers from the

[13] Clive Grey, and Malcolm McPherson, *Leadership in Africa* (Cambridge, MA: Harvard Institute for International Development, 1999).

[14] Namibia's EMIS system is one of the better ones around but schools are dynamic institutions, particularly in areas targeted by reform efforts. Students, teachers, and programs were constantly changing in these schools and the static school census information was not sufficient to determine the needs of specific schools.

three initial regions of the Ondangwas and Rundu targeted by BES was 1,600 of the 7,362 primary school teachers in the northern regions. The 1,600 were untrained and had low education backgrounds. There were another 2,277 trained, at some level, but also with low education backgrounds. There were 1,203 teachers eligible for the Basic Education Teacher's Diploma (BETD) Inservice Training (INSET), and there were 2,192 who were fully trained and qualified. Additional BES target teachers were anticipated from system growth and expansion of the project to other regions.

Teachers' Basic Competencies Manual (TBCMs)

The original intervention proposal didn't differentiate between teacher effectiveness and the improvement of instruction. The hypothesis was that the SIMs materials would generate useful experiences with good teaching practices and this experience would generalize to other activities of the teacher. Therefore, teacher education took place where change was to be effected—in the classroom, and training took place in real-time instruction. If the teachers can handle the meta-program of SIMs, then the transfer to new subjects and classes should follow.

However, the USAID/Namibia Mission had contracted for personnel to build materials for teacher education during the interim period between project design and project start-up. These personnel were transferred into the project once the contract was awarded to the Institute for International Research (IIR). The major emphases of their work were advice to the Lower Primary Reform Task Force and development of the TBCMs.[15]

From the outset, the TBCMs were well-received. They were developed through extensive consultation with several Namibian committees, local and international aid professionals, and the professional literature. The TBCMs are available in English, and in translation in several important *mother tongue* languages used in the target schools in the north. The 20 modules are simple, clear, and focused on classroom teaching work. They define objectives, raise basic topics, provide instruction, ask questions, suggest activities, include more informal tips, and include an assessing self-test. Their titles include many key teaching topics: lesson planning, continuous assessment, classroom management, instructional materials, questioning techniques, teaching children according to their learning styles, and teacher as professional. The TBCMs were considered of high quality and relevance by all parties, officials, outside observers, trainers, and trainees. They conform to the highest Namibian educational ideals and policies (although the continuous assessment module was written before the policies were established).[16]

Although the TBCMs were ostensibly developed to supplement the new materials, SIMs was a different kind of program than that envisaged in the TBCMs. SIMs originated from different premises than the TBCMs, and the structured approach met resistance from TBCM designers and trainers. This proved less problematic once new instructional advisors joined the project, and the later SIMs materials are more congruent with many of

[15] Mark Lynd, *Teachers' Basic Competencies Manual, Modules 1-20* (Okahandja, Namibia: National Institute for Educational Development, Ministry of Basic Education and Culture, 1996).

[16] John W. Meyer, "Teaching and Certifying 'Unqualified' Teachers in Namibia: The Instructional Skills Certificate," Chapter 2, in Inside Reform: Policy and Programming Considerations in Namibia's Basic Education Reform by Conrad W. Snyder, Jr., and Friedhelm G.G. Voigts, eds. (Windhoek, Namibia: Gamsberg Macmillan, 1998), pp. 103-154.

the TBCM notions. But these are not inherently compatible intervention tools, illustrating the many inconsistencies that find their way into any reform.

The development of TBCMs proved fortuitous for the Ministry. Namibia needed a program to provide an avenue to qualification for the scores of teachers, particularly in the north, who were possibly deprived of opportunities to enhance their preparedness under apartheid. The *Instructional Skills Certificate* (ISC) incorporates the TBCMs as the curriculum. The materials are in English for non-BES schools and in the local language in BES target schools. At the time of the ISC conception, approximately 4,000 teachers were considered 'trainees,' and many of these teachers were identified within the northern target area of BES. This is the substantial market for the ISC and an important political clientele who required attention, fair treatment, and reasonable opportunities to keep their positions.

The ISC program operates in the Ondangwas, Rundu, Khorixas, Keetmanshoop, and Windhoek regions. In 1998, approximately 200 teachers were formally enrolled, about a quarter dropped out, and three-quarters sat for the examinations. In the exams, 20 received distinction, 139 passed, and 5 failed. In 1999, approximately 270 sat the examinations, and the third wave of students is being processed for entry. The program consists of 600 hours or 12 weeks of contact, and is operated by the Rössing Foundation and the Peace Corps, with authority from the National Institute for Educational Development. Each candidate qualifies for the program if they have a grade 10 education, no higher than a grade 12 education, but do not have a teacher training certificate. They pay N$1,000 each for entry. Like SIMs, the ISC is considered an interim, remedial program and is scheduled for the last intake in 2001.[17]

The purpose of the ISC is certification. Graduates of the ISC can enroll in the BETD INSET, if places exist in this inservice course, and full qualification depends on eventual completion of the BETD. The impact of the ISC is unknown, but it will 'produce' about 750 partially trained teachers from the pool of trainees. Its political importance is clear. BES provided valuable support to this remediation effort, and helped to stabilize the northern teaching force at the target schools. Within BES, and only within BES, teachers were guaranteed their jobs while in training. This didn't always happen because regional offices were anxious to replace the teachers with new BETD graduates.

SIMs Training

As mentioned, the TBCMs did not serve as a direct support for the SIMs program. SIMs carried out its own training to introduce the materials into the schools. The training followed the progression of implementation, grade 1 first and then followed with each grade as the materials were completed and introduced at the new grade. The summary of training is provided in Table 1.

[17] Patti Swarts, *Instructional Skills Certificate Programme*, Conference Report. (Windhoek, Namibia: Basic Education Support Project, November, 1999), pp. 60-61.

Table 1. Summary of Grades 1-4 SIMs Training

Training Year	Grades Trained	Regions Involved	Length of Training	Number of Teachers	Model Used	Follow-up Training
1997 (Jan)	1	Ondangwas, Rundu	2 weeks	170	Central Venue	No
1998 (Jan)	2	Ondangwas, Rundu	1 week	298	Central Venue	Yes, 2-stage cluster-based
1999 (Jan)	2, 3	Ondangwas, Rundu, Katima Mulilo	1 week	750	Central Venue	Yes, 2-stage cluster-based
1999 (Aug)	2, 3	Ondangwas	3 days	35	Central Venue	Proposed
1999 (Oct/Nov)	1, 4	Ondangwas, Rundu, Katima Mulilo	2-3 days training, with 4-6 weeks practice	1,250	Circuit-based Practice Model	Proposed

This totals approximately 2,500 teachers who were familiarized with SIMs. The training was particularly sparse in 1997 because the materials were not fully prepared when implementation was begun, and was compromised again in 1998 when little time was available for the training due to other Ministry obligations. Training was essential so that teachers would understand the methodology of SIMs but full understanding and practice mostly depended on the teachers themselves working with the structured materials, with some help from PCVs when they had a question.

The primary training model for grades 1-3 was the central-venue model. In this model, the SIMs teachers came for 1-2 weeks to a central venue, such as the Colleges of Education or the Teachers' Resource Centres (TRCs), to participate in training delivered by groups of SIMs facilitators. The training involved instruction in parts of a SIMs lesson, the correction procedures, signaling and classroom management, remediation and enrichment, as well as continuous assessment. Practice lessons involved the teachers with their peers playing the roles of learners. All training was carried out in *mother tongue*. In 1999, a new model was developed to handle the larger number of teachers for grade 1 (revision) and grade 4 training. The original venues were not large enough to accommodate the 1,250 teachers. A decentralized training model was developed using school, cluster, and circuit-based training programs. SIMs trainers met with the grade 1 and 4 SIMs teachers at a venue accessible within the circuit for a one-day training session. At the end of the day, teachers returned home with assignments to teach some SIMs lessons and write reflections about their experiences. Teachers returned to the training venue after two weeks of practice for another day of training. They shared their questions and successes with others, and received more training. A plan was organized for the continuation of meetings at the cluster level. The model was advantageous because:

- No accommodation is needed.
- Teachers are away from their classrooms only 2-3 days for training.
- Teachers could try out SIMs and then come together and discuss their problems and questions.

- Local expertise with local problem solving is encouraged (accordingly, greater correspondence with the constructivist ideology).
- Develops circuit-based trainers for sustainability.
- Lower costs (N$310 per teacher for the central venue model and N$62 per teacher for the circuit-based practice model).[18]

No statistics are available on the specific participants in the BES intervention. A glimpse of the situation was evident even in the first year of the program.[19] In a sample of 26 teachers who were interviewed about SIMs, only six had no teacher training (four of these came from Rundu), six had below grade 10 education, and six had grade 10 education. Most teachers had considerable experience in the system. So BES did not face the projected low-talented teaching force. Many of the participants were educated and trained teachers. Professional credentials do not fully reflect the quality of teaching, but it appears that trained, educated Namibian teachers appreciate SIMs as well, especially when they face the impoverished environments of the northern schools. It's unfortunate that SIMs has been labeled remedial by NIED because the structured materials are generally useful and in their latter grade formats are not irreconcilably incompatible with the general curriculum.

Instructional Effectiveness

The systematically-designed, structured materials (SIMs) in mathematics, environmental studies, and local language were placed into target schools in Ondangwa East, Ondangwa West, and Rundu in January, 1997. Readiness materials, not available in the normal curriculum, opened the class sessions in order to help these learners adjust to the place and process of school. This was quite a transition for these young children. The full complement of materials was delayed for numerous reasons (the primary one being the many changes in the project due to the lack of involvement by local experts and the limits on time for teachers involved in the materials development process). Materials were available as they were scheduled. Delivery problems, using the Ministry delivery process, meant that many materials were delayed getting to the schools. Despite these initial difficulties, reports from PCVs and regional officials confirmed that most teachers were using the SIMs materials as soon as they got them.

Early SIMs materials were tightly structured, production was expensive, and the planned arrangement of posters and resources was complicated. The translation into local languages also was much more difficult than originally thought. Lack of a stable orthography, regional variations in language use, and limited translation skills (particularly on the English side) challenged the quality of the materials. Training in the materials was theoretical (PCVs walked out initially), short, and based only on the readiness materials. Considerable concern surrounded the project. The proposed program

[18] Joy du Plessis, Target School Coordinator Final Report (Ongwediva, Namibia: Institute for International Research, 1999).

[19] Joclynn W. Snyder, and Demus K. Makuwa, "Systematically, Designed, Structured Instructional Materials: Initial Perceptions of SIMs during the Implementation Phase" (Chapter Four), in *Inside Reform: Policy and Programming Considerations in Namibia's Basic Education Reform* by Conrad W. Snyder, Jr., and Friedhelm G.G. Voigts, eds. (Windhoek, Namibia: Gamsberg Macmillan, 1998), p. 192.

was overly ambitious and the local support practically non-existent. Curriculum developers and translators were eventually selected from released, unemployed, untrained, or retired teachers, usually having lower credentials than the target group. They were culled during training and in the development process—until a competent core remained for the materials development. These individuals were released by NIED, even though the curriculum expertise at NIED is sparse and fragile. Only the regions rose to the task and many skilled instructional developers now reside in these areas. Since curriculum development is centralized at NIED for the country, it remains to be seen if the regions can utilize these talented individuals to assist in the curriculum development process.

It was not an auspicious start. The success of SIMs, in fact, attests to the robustness of the approach and the materials. Very little that constituted the IIR proposal eventuated. For the first year materials, the costs were as high as the professionally published materials (US$250 per SIMs set), and yet the major benefit of these materials is usually cost effectiveness. The project had to adapt, adjust, and sometimes totally change processes and plans. A new instructional team was added, as well as a new target schools intervention coordinator. A key appointment was also an experienced production manager, Barry Vogeli, who also served as technical director and eventually Chief of Party. These alterations created a new dynamic and added other important dimensions to the material development process and philosophy. The costs fell to about half the grade 1 materials for the grade 2 materials, and eventually to about one-third overall. And the processes of development and the resulting materials were more professionally handled.

The eventual impact of SIMs was felt by 467 schools, 2,151 teachers, and 82 Peace Corps Volunteers. Table 2 presents these results. An additional 75 schools were provided with materials and assistance to bring the total SIMs schools to 542 in all.

Table 2. SIMs Target School Summary

Region	Number of Schools	Percentage of Primary Schools in the Region	Number of Teachers	Number of PCVs Involved
Ondangwa East	162	63%	723	32
Ondangwa West	127	64%	697	26
Rundu	97	46%	393	16
Katima Mulilo	81	95%	338	8
TOTAL	467	62%	2,151	82

Grade 1 Implementation (1997)

The grade 1 materials were riddled with problems, both in development and in their final production form, but their immediate acceptance by the northern teachers was evidence of the substantial need for a clear instructional program. These teachers were no longer without materials because of the distribution of textbooks the preceding year under the Lower Primary Reform. Their use and appreciation for these structured materials exceeded many expectations and inspired the continuation of the project.

Implementation was checked about midway through the academic year. Interviews at 24 randomly selected SIMs schools indicated that the new materials suited the teachers' needs for clarity, ease of use, low work level demand, support to build confidence, and encouragement for learners to participate and learn.[20] There were some ambiguities but the materials were being used by many teachers. Classroom observations of 27 lessons at these schools in mathematics and environmental studies yielded positive results as well when compared to pre-SIMs lessons:[21]

- Active use of knowledge was evident in 11 lessons out of 27 SIMs lessons. This reflects more than rote learning occurring in the lesson.
- *Clarity*: SIMs objectives were clearer, had more appropriate support activities, and SIMs teachers appeared to have more content knowledge.
- *Thoughtful Practice*: SIMs lessons offered more opportunities for thoughtful practice, the cognitive level was higher, participation was greater, and there were more questions asked by teachers (probably due to the built-in continuous assessment materials).
- *Motivation*: SIMs lessons presented more teaching strategies, were generally higher quality, SIMs teachers appeared to enjoy their work more, learners initiated more interactions, and the complexity of SIMs lessons was greater.
- *Feedback*: SIMs led to more feedback.

These results suggest that structure is important, because many of these attributes were features added in the instructional design. When programmed in this way, the background or training of the teacher is enhanced in terms of classroom performance. Mathematics lessons were particularly amenable to the structured approach, perhaps due to the inherent structure of the subject area.

At the beginning of the year in grade 2, specifically developed tests in grade 1 English, mathematics, and environmental studies, which comprised both individual items and group performance items, were administered to the evaluation target schools (those randomly selected earlier to be followed in the SIMs process) and a control set of schools.[22] Ten BES schools from each of the regions constituted the target group, and 24 schools from the three regions were selected as matched equivalents for comparison. Matches were based on the school grade configurations so that they had the same number of grades and classes and the same learner to teacher ratios in those classes. Other data

[20] Joclynn W. Snyder, and Demus K. Makuwa, "Systematically, Designed, Structured Instructional Materials: Initial Perceptions of SIMs during the Implementation Phase" (Chapter Four), in *Inside Reform: Policy and Programming Considerations in Namibia's Basic Education Reform* by Conrad W. Snyder, Jr., and Friedhelm G.G. Voigts, eds. (Windhoek, Namibia: Gamsberg Macmillan, 1998), p. 212.

[21] Conrad W. Snyder, Jr., "Glimpse Inside Structured Classrooms" (Chapter Five), in *Inside Reform: Policy and Programming Considerations in Namibia's Basic Education Reform* by Conrad W. Snyder, Jr., and Friedhelm G.G. Voigts, eds. (Windhoek, Namibia: Gamsberg Macmillan, 1998), pp. 213-255.

[22] There were few funds available for monitoring the SIMs process so all designs were carefully developed using power estimates based on test variances in pretest sessions, as well as checks from the SACMEQ results. The minimal number of schools was involved in the monitoring to detect impact in order to use the limited funds efficiently. Although the intention was for local professionals to carry out these studies, almost no one was available for this initial work and SIAPAC personnel were employed to assist. Little priority was connected to what was thought of as an interim program by NIED, but the regional offices did provide some personnel to help find the schools and make necessary arrangements for the sessions. The delay to the next academic year was due to the contractual delays between USAID and Rössing/SIAPAC.

collected included age, language used in class, gender makeup, number of learners in the class, and a short test to see if the learner could spell their own name correctly.

The results of this non-equivalent, control group experiment showed that SIMs classes performed better than non-SIMs matched classes in mathematics and environmental studies, but did not outperform them in English. Recall that there were no SIMs materials for English instruction. The English performance serves as an additional control. It would contain the specific influences of PCVs on general instruction (along with TBCMs), immediate generalizability of SIMs across other subject areas (this could emerge later though with experience), and other reform influences. In mathematics, the gains on average for the SIMs group were about a half item on the written test and one and a half items on the oral group performance test; in environmental studies, one-half item on the written test and three items on the oral group performance test.[23] Other variables that could have influenced the results were non-significant: age, language used in class, gender make-up, and skill at spelling name correctly, but SIMs classes were significantly larger, which is as hoped for. Given that the tests are mastery instruments based on the competencies for grade 1 (officially approved competencies weren't available during the materials development phase for SIMs), these are strong supportive results to indicate the positive contribution of SIMs on the identified competencies.

The SIMs goal is to establish cumulative competence through a system of incremental steps. Steps can be skipped, ignored, or accentuated by the teacher. Learners can progress at self-paced. This is the learner-centered feature of SIMs. Continuous assessment (CAMs) is embedded within the highly scripted instructional lessons so teachers can estimate the progress of individual learners. Lessons in the SIMs Teacher's Guides and teaching materials specify each teaching activity leading to an explicit objective. There were five sections in these early guides: Objective, Strategies, Assessment, Remediation, and Enrichment. The assessment section appraises progress and then encourages either remediation or enrichment.

In observing 21 teachers in their use of CAMs in 30 lessons, 16 used CAMs in some way (seven incorrectly), and 14 didn't use CAMs at all. Of the 16, only nine were used as directed (four) or creatively (five). For these nine teachers, ten of the classroom observation scales were related to CAMs use. The better the use of CAMs, the more the elaboration and use of examples, the more knowledge of content displayed by the teacher, the more coherence and content flow in the lesson, the smoother the process and events flow of the class, the more opportunities for practice, the higher the cognitive level of learning, the more the teacher demonstrated preparedness and organization in the lesson, the more questioning used by the teacher, the more complexity and interrelatedness

[23] Robert Barcikowski carried out multivariate analysis of covariance (with English as the covariate). Both the written and oral tests showed significant differences. Hua, Barcikowski, and Snyder used these data to demonstrate Hierarchical Linear Analysis as well during training sessions in the Planning and Development Directorate. This later created some confusion about the design and its interpretation. This quasi-experimental design is not technically suited to HLM. The schools are not selected from the national sample, so variance estimates will be constrained and possibly non-representative, and other variables were also constrained by design. The tests were also created for the group comparisons and were as efficient as possible. These very young children could not participate in long sessions of assessment. These design characteristics can lead to misinterpretations of HLM results unless the design is fully understood and appreciated. Therefore, HLM results are not reported here.

displayed in the links within and between lessons, and the more information feedback given. This can be interpreted in either direction: good teachers use CAMs or CAMs helps to organize lessons in useful ways. The problem we face is the rarity of good continuous assessment even in this sample of teachers who knew they were being observed and were expected to use CAMs.

In practice, CAMs are ignored or not well used. There was considerable concern expressed by teachers about their use of CAMs, particularly because the continuous assessment policy (also developed with BES assistance) was not yet formalized. Even with these reservations, CAMs is related to good teaching. Its complexity must be appreciated however, and it requires a great deal of careful research and understanding in the local context to suggest its eventual role in lower primary instruction.[24] From what was seen in the classroom observations, for those teachers who are good in classroom processes, CAMs help them and make them even better. But they may not enhance poor teaching or produce learner-centered environments with poor teachers, as previously hoped.

Grade 2 Implementation (1998)

The grade 2 materials were carefully edited, repackaged to lower costs, and streamlined in materials support (e.g., posters no longer contained all the teaching information because that required various versions for each of the languages). Efforts were also made to provide protective coverings for the materials when not being used to prolong their life. The scope of the implementation increased significantly as BES aimed at further penetration into the northern regions and their remote schools.

The costs of SIMs/CAMs in their final version were low. The closest relative to these is the Direct Instruction Model, now used in about 150 schools in the USA. Costs for DI are about $65,000 per school per year for five years, plus additional costs for individual student materials. SIMs cost approximately $1,000 per school per year with no additional costs for materials. The DIM materials are more carefully constructed and more sophisticated in design,[25] but SIMs is a good approximate for impoverished systems who have their own instructional objectives.

Grade 2 materials were improved based on formal and informal feedback about the grade 1 materials and the editing by new instructional experts who joined the project during the implementation of grade 2. Classroom observations confirmed improvements in increased teaching strategies, greater cognitive challenge, more opportunities for thoughtful practice, and improved teacher preparation. Twenty-seven lessons were available for the comparison between grade 1 and thirty-one lessons for grade 2. In addition, for this analysis, a non-equivalent control group was matched to the target schools so it was possible to examine the changes in classrooms, during the same period, as a general result of the Lower Primary Reform and compare these to the additional intervention of BES.

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[24] Bonnie L. Prince and Conrad Wesley Snyder, Jr., *What's Communicated in Classroom Assessment: Judgment Crossroads in Continuous Assessment* Development Discussion Paper No. 717 (Cambridge, MA: Harvard Institute for International Development, 1999). (Previously presented to the Directorate of Planning and Development in 1998).

[25] DIM information and materials are available from the National Institute for Direct Instruction, PO Box 11248, Eugene, OR 97440 USA.

The results indicated that not only did SIMs lessons reflect improvements over pre-SIMs lessons, but also there were equivalent improvements in all classes. That is, there were no differences between SIMs lessons and non-SIMs lessons in classroom processes. The textbook approach can be appropriately structured.

The equivalence of SIMs and non-SIMs lessons in classroom environment was encouraging evidence for the general reform. Unfortunately, when ethnographic studies were conducted at a couple of SIMs and non-SIMs schools, it was found that the SIMs teachers maintained the high-level classroom quality. The non-SIMs teachers had a limited repertoire, used it when observed, and then were less prepared for the rest of the academic year. This, again, points out the advantages of the comprehensive structure in SIMs/CAMs. Although temporary teaching quality can occur, it is the availability of external structure that enables continual high quality in low motivational contexts. There was never a question that a motivated, good teacher can create a positive learning environment. Our problem in mass education under impoverished conditions is the few apparent incentives and low expectations.

In November, 1998, grade 2 tests, similarly developed by BES to those of grade 1, were administered by the Ministry, with support from the Social Impact Assessment and Policy Analysis Corporation (SIAPAC) under a monitoring and evaluation grant to the Rössing Foundation. Test data were available for 844 learners in grade 2 from 50 schools, 30 SIMs and 20 comparison schools. Fifty-nine classes and teachers were randomly selected with up to 20 learners for each class. Sampled learners were given 12-13 item tests in English, mathematics, and environmental studies. Although the tests were developed as mastery tests of the grade 2 competencies, the distributions of all three tests were approximately normally distributed. Learners in SIMs schools performed significantly better than those in non-SIMs schools in mathematics and environmental studies, but all mean scores remained lower than hoped. English performance was the same for both instructional programs. See Table 3.

Table 3. Differences in BES Attainment Measures Between SIMs and Comparison Schools

Subject	SIMs	Control	Mean Diff.	t test	p-value	Significant
English	6.05	6.02	0.03	0.27	0.79	No
Mathematics	5.34	4.34	1.00	5.35	0.00	Yes
Environmental Studies	7.43	6.69	0.74	5.17	0.00	Yes

These results for the written tests are similar to those for grade 1. It appears that the impact is greater at grade 2 in terms of differences in mean competencies but this is difficult to assess accurately. If true, this could reflect a cumulative effect of SIMs. These grade 2 SIMs learners were the same learners tested in grade 1 (so were the comparison learners). The effect of environmental studies was more reliable in the grade 2 analysis.

The similarity of classroom environments, but the differences in performance suggests that it is the materials themselves that make the difference and not something attributable to teacher quality. To speculate, it appears that the structure of the materials aids learners

in their learning as well as promotes more consistent classroom conditionalities for learning. Of course, there's also the possibility that the sustained high quality of the SIMs classes, as observed in SIMs schools over time, may be the key to performance increases.[26]

Two troubling aspects are that the performances are not high on tests that merely assess the expected competencies, and there appears to be no intention of building on the hard-gained benefits of SIMs. NIED has already expunged all traces of BES development capability, and popular rhetoric attributes BES benefits to the tangible provisions of PCVs and training so it is unlikely that any local pressure will push for continued development of SIMs. The sustainability of SIMs depends on the life durability of the produced materials.

Grades 3, 4, and Revision of 1

Grade 3 materials were completed for mathematics, environmental studies, and local language literacy. These materials were translated into the five local languages. Problems in translation plagued the project throughout. Frequently, direct translation is either inappropriate or not possible. In such situations, the translator has the discretion by virtue of language access. Only a few of the translators would discuss these problems because cultural norms worked against an open strategy. A discussion would acknowledge the existence of the problems, an evaluative stance that is not usually taken in these cultures.[27] Nevertheless, from feedback about the materials and the confusion even within the feedback, there is considerable doubt about the quality of the translations.

In grade 4, materials were completed for mathematics and environmental studies in English, because this becomes the language of instruction at this level. Grade 4 is a transition year for the learners. The change of language is non-trivial, and special attention to the introduction and practice of necessary English vocabulary is required. Unfortunately, despite the many questions associated with the cumulative effects of SIMs and the transition from grade 3 (local language as the medium of instruction) to grade 4 (with English as the medium of instruction), no monitoring and evaluation information was collected and the opportunities were lost to better understand these changes.[28]

Grade 1 was the only set of materials that was revised, due to the limited time of the project. This was a difficult process, because the development of grades 3 and 4 overlapped with the work on grade 1. These materials were now produced in more cost-effective ways.

Principals' Training and Familiarity and Other Training

Training sessions were held for 240 principals from BES schools so that they could provide instructional leadership and assist teachers using SIMs. Approximately 36 Circuit

[26] The sustained program under SIMs may be somewhat attributable to the presence of PCVs in the SIMs circuits as well. Their influence on non-SIMs schools was not as important for subject attainment. The evaluation design did not attempt to unpack the SIMs package.

[27] Patricia Rowell's notes from the BES Project, 1998.

[28] PAD and NIED explicitly decided to limit the M&E grant to Rössing and SIAPAC to the completion of grade 2 monitoring and evaluation. Efforts were then to focus on consolidation and further training.

Inspectors were trained, as well as counterparts in the Ondangwa, Rundu, and Katima Mulilo regions. Regional teacher conferences were held in the Ondangwas and Rundu. This still constitutes minimal training. Successes in the project were mostly attributable to the robustness of the materials rather than innovative training strategies.

Monitoring and Evaluation

The BES Steering Committee met twice in July, 1995, to lay out the needs for a monitoring and evaluation system. Three guidelines emerged from the discussions:

- M&E should include both formative and summative information.
- M&E should be conducted at all levels of implementation, the schools, the teachers, as well as central policy makers.
- Establishment of the M&E section of the Planning and Development Directorate.

The lack of technical capacity and personnel was discussed, and technical assistance requested from USAID/Namibia. In the original project design, the PCVs were to be the data collectors in this M&E system, the Target Schools Intervention advisor was to assemble the data for use, but analysis responsibility was unclearly assigned. Monitoring was defined as a "formative management process, providing a flow of information to improve implementation through revision and necessary course adjustment, while evaluation is primarily concerned with outcomes rather than with processes."[29] An elaborate system was designed that linked the classroom to policy and reform, with information flowing from demand through each level of management. Additionally, the design for project evaluation entailed 30 closely monitored SIMs schools and 30 non-target, control schools. With personnel deficits, low technical ability, and position freezes, the demand for information was low. Monitoring was carried out within the project, involved a wide-range of people's perspectives and views through interviews, and depended on trials of the materials in local schools. The notion of revision, except for immediate revision, was only possible in grade 1. The scope and complexity of this project, particularly given the misinformation about Ministry capacity, overwhelmed many reasonable ideas and kept the project focused on nearly impossible development and production deadlines.

In 1997, trials, interviews, and classroom observations laid the foundation for extensive revision and personnel changes in the project. Nearly an entirely new technical assistance team was in place in 1998. Technical assistance in M&E ended in August, 1998, just as the 'new' project was underway. Scheduled to end in early 1999, the promising evaluative information on SIMs led to an extension of BES I into December, 1999. The interviews and classroom observation data from grade 1 were available by the end of 1997, and the results suggested that SIMs, even with its many problems in the first two project years, were working. Attainment data were collected in February, 1998, but the processing by EMIS/Planning and Development Directorate was not ready until August, 1998, just as technical assistance was about to leave. Only a quick set of analyses and a presentation to

[29] Simon Ju, *The Design of the Monitoring and Evaluation System for the Basic Education Support (BES) Project, Namibia* (Windhoek, Namibia: Institute for International Research, July, 1995).

USAID and the Directors of PAD and NIED was possible. Fortunately, training in administration of the M&E program for BES was successful, and the Ministry coordinated the collection of attainment data for grade 2 without technical assistance. The analyses of that data were available in October, 1999.[30] The design for the summative evaluations of SIMs was efficient and sufficiently powerful to detect the projected differences. It's rare to identify reform impact, so BES has indeed imprinted itself on several classrooms of learners in the north and represents a rare positive educational development finding.

The reports on the success of SIMs complicated the situation for NIED. They had distanced themselves from the technical aspects of BES, although providing offices and contacts into the curriculum reform of lower primary. Positive results increased demand for the materials but the larger plan was to use BES work as an interim reform until other adjustments could be made in teacher quality. Early SIMs results demonstrated that newly trained teachers also liked and used the structured package, some using the package as a foundation for their own lesson plans. It is probable that SIMs and BES would have withered earlier without the evaluation information or that the scope of implementation would have been severely limited. The popular use and the demonstrable results gave SIMs a chance to continue.

There was only one person designated as M&E in PAD[31] and the NIED evaluation group emerged in the last year of the project. Attempts to involve inspectors, advisory teachers, and regional officials all ran into the same story of overworked personnel, limited skills in evaluation, and not enough staff to carryout any serious work for BES. Gradually, many people took advantage of the BES observation, interview, and testing programs to visit northern schools. Surprisingly, although the problems of the north were well articulated by local professionals and consultants, few people from the urban areas actually knew what these schools really looked like and what kinds of problems they really faced. Frequent complaints about the lower primary reform were aimed at the development of materials without special consideration for the particular context of the north. The curriculum committees, although representative of key groups, were not necessarily cognizant of all areas of needs in Namibia.

The lack of personnel to either use or generate monitoring and evaluation information was so acute that two programs were initiated: a year-long course in research and statistics for key personnel across the Ministry in 1997, and a Professional Enhancement Program to formalize relevant credentials and initiate the beginnings of a research and evaluation community in 1998. In the course, actual monitoring and evaluation activities were reviewed. This resulted in a publication series by the Directorate of Planning and Development. The first monograph documented the formal monitoring and evaluation studies carried out in 1997. Each author presented the results of studies to the class,

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[30] Haiyan Hua, "Monitoring the Basic Education Support Intervention," Seminars held in Keetmanshoop, Ondangwa, Rundu, Swakopmund, and Windhoek, in *Monitoring and the Quality of Education: Lessons from Research and Statistical Data* (Windhoek, Namibia: Directorate of Planning and Development, Ministry of Basic Education and Culture, October, 1999).

[31] Demus K. Makuwa, *A Brief Report on the Directorate of Planning and Development's Contribution to the Monitoring and Evaluation of the BES Project's Structured Instructional Materials*, Conference Report. (Windhoek, Namibia: Basic Education Support Project, November, 1999), pp. 34-37.

answered questions, and explained the larger theoretical frame for the evaluation work. *Inside Reform* wasn't available for distribution until late 1998, after the technical assistance had left. Additionally, the classroom materials were also documented in *Exploring the Complexities of Education*, which became available in late 1999. Because of the impending departure of any technical assistance in research and evaluation in August, 1998, a grant proposal was prepared through the Rössing Foundation and SIAPAC.[32] This formally placed responsibility for the continuation of M&E with the Directorate of Planning and Development (PAD).

Unfortunately, a key person in PAD was assigned to a national assessment program and for a long time, no technical expertise was available. The success of the November testing program for grade 2 was a wonderful achievement by the M&E/PAD individual and his team. Those data confirm the validity of the SIMs approach for the northern schools. Also, the recent return of EMIS personnel, the acquisition of technical assistance under the M&E grant (notably Haiyan Hua), and the nearing end of the BES project resulted in the series of seminars held around the country to explain the various monitoring and evaluation results (including the national assessment results that were not part of BES).[33] This was precisely the plan laid out at the onset of the project. Unfortunately, the effort is late and probably insufficient for anything but information sharing. The hope lies with the Professional Enhancement Program cooperative agreement with the Universities of Montana, Namibia, Western Cape, and Harvard Institute for International Development (HIID), and the re-emergence of the Namibian Educational Research Association (NERA) to generate continuing dialogue on reform and create demand for M&E information.

The monitoring and evaluation program delivered the information needed for project management. Vast changes and modifications in the project resulted from informal and formal monitoring, and the evaluation work legitimized the use of SIMs in the north. No resources existed in the BES Project for system development, and few of the resources of the M&E grant have been used to further the development of an M&E system—this is perhaps an inevitable consequence of the continuing lack of personnel. The key to BES has been the investment in training and the delivery of quality materials with an associated sample M&E program to understand their impact. The creation of a viable and contributory M&E system lies in the future, and will require significant investment and commitment. The importance of an M&E system was clear in BES and provides the only record of this intervention effort. How much development information have we lost because of no M&E?

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[32] Both the *Inside Reform* and *Exploring the Complexities of Education* were products of the M&E grant and not the BES Project.

[33] The analysis of grade 2 data with HLM continued to confuse those familiar with SACMEQ national assessment results. The quasi-experimental design for SIMs is not designed for HLM. Application of HLM was illustrative, not technically appropriate, and not generally useful for interpretation without considerable caution and awareness of the design constraints. BES focused on a very select group of schools in a very narrow range of regions. Estimates of variance between schools should be low. The intent, in fact, is to minimize within group variance to improve the sensitivity of the design to detect SIMs effects, which happened. Although brief because of the age of the learners, the tests were sufficiently accurate to reflect the differences, which also was part of the design. BES summative evaluations are not designed for correlational assessment purposes.

Important Points Learned About a SIMs Approach

- The SIMs package is highly scripted and clear in intent. Each lesson is fully articulated. Teachers do vary in their use of SIMs but the structure built into the materials appears to be valuable in increasing subject attainment and ensuring the continuation of good teaching throughout the academic year.
- Lower Primary is particularly difficult to reform because of the reliance on many different local languages as the media of instruction in varying regions of the country. This means that materials will be costly if produced in multiple languages, and it means there must be a pool of talented translators available.
- Translators lacked training in basic literacy conventions. They need considerable training, guidance, and checking.
- SIMs training is inconsistent with the constructivist philosophy of the Namibian teacher education program as articulated in the Basic Education Teacher Diploma (BETD). Teachers do not necessarily develop their critical thinking and problem solving abilities using SIMs. They can merely mime the SIMs lessons.
- Single venue, central training is costly and inefficient. The apparent success of the cluster-based practice model is encouraging. As the program expands, new professional development strategies are required to keep costs manageable.
- The role of a Coordinator is an important position in the project. The scope of coverage, however, was vast in BES, especially as the project was implemented so widely in four regions.
- Peace Corps Volunteers have valuable information about reform implementation but their intents are for rich cultural experiences and not solely development. They will not deliver on evaluation designs, and shouldn't be expected to do so. However, they can be usefully involved in portraying the context and telling specific stories about the effects of reform.
- Instructional systems design remains controversial. As pointed out by Reimers and McGinn:[34]

  > Research has…shown that instructional materials can be designed to substitute for teachers, especially for teachers who have low classroom management skills. Highly scripted materials that tell teachers and students what to do take the place of formal instruction by the teacher… But policy makers are not yet persuaded of their efficacy, do not believe claims made on their behalf, or do not understand how to reorganize their systems in order to use this approach.

- Appropriate, relevant instructional materials can be produced by external curriculum experts, if reviews and consultation are integral parts of the process.
- Monitoring and evaluation information is critical to the improvement and survival of a reform program. Evaluation designs are more complicated and complex than usual research methodologies. The level of competence available in developing institutions is unlikely to be able to fully implement an evaluation system without considerable training and experience.

[34] Fernando Reimers, and Noel McGinn, *Informed Dialogue: Using Research to Shape Educational Policy Around the World* (New York, Praeger, 1997), p. 8.

- Qualitative information is an important part of an evaluation design, but quantitative analyses are more credible and convincing.
- Without counterparts and program integration, sustainability is unlikely regardless of the technical success of the intervention. However, this has to be weighed against the immediate and lasting effects that a good program has on the children who interact with the improved intervention. There is considerable resistance to any program that deviates from traditional schooling but it is clear that the traditional model is not effective and not sustainable.
- Low cost materials can be effective if properly designed and developed.
- Instructional materials, alone, are unlikely to solve the problems of an impoverished scholastic environment. They are an important component, however.
- Poor leadership and management will neutralize effective reform. The 'blind' opposition of NIED to the SIMs/CAMs approach rendered an effective program obsolete even before implementation.
- The keys to effective reform are good management, good information, openness and non-defensiveness, and extensive professional development. These conditions are hard to find or develop.

Intentional Strange Loop

Complexities in international educational development projects remind us of the political dimensions of education. Politics can enhance participation, or it can blind management to advantages and create passive resistance, or it can pre-empt interventions that might undermine existing power bases and create active resistance. The effects of politics are varied, but it is safe to say that they do not always correspond to the best interests of students or education in general. As pointed out by Healey and DeStefano (p. 18),[35]

> …policy reform efforts in the past have recognized the centrality of information to the overall reform process, but all too often, they have naively assumed that negative policy environments were the result of policy mistakes, and that good data and analysis—good information—would be sufficient to turn these mistakes around….Good policy, or scale-up, is therefore constrained more by the characteristics of the policy makers and the process through which they habitually make decisions than by the nature or lack of information.

The BES Project complexities began in the selection of contractors for the reform effort. SIMs/CAMs was selected as the approach, even though other offers were more consistent with the ideologies of Namibian education. The reasons for the particular selection will never be fully known, but the inconsistency of the selection with key institutional beliefs suggests that the anomalies were not recognized at the time and other considerations entered the picture. Other considerations may have included the long list of successes accumulated by instructional systems design approaches and the availability of a team

[35] F. Henry Healey, and Joseph DeStefano, *Education Reform Support: A Framework for Scaling Up School Reform* (Washington, D.C., Academy for Educational Development, 1997). Available through the ABEL 2 Project, 1875 Connecticut Avenue, NW, Suite 900, Washington, D.C. 20009, email abel@aed.org .

that worked successfully in another country on a similar, although more limited, project. This demonstrates the fragility and superficiality of the bidding/contract approach in educational development. It's not that these considerations are irrelevant but the lack of fit of the approach with the underlying philosophy of Namibian education predestined the intervention to have a short life. Sustainability was never a real possibility.

Once BES was initiated, it didn't take long for local officials, many the same involved in the selection process, to become aware of the full implications of a SIMs approach. However, it must be added here that the cooperation with external projects in Namibia is strange in any case. Apartheid apparently was attributed to outside agents, and external projects have too many similarities of external control to suit some local officials. This means that projects are kept outside the system, creating a strange set of relationships in institutional development efforts. The resistance to collaboration or any form of cooperation is strong. Instead of the usual concern of project resources carrying unrealistic activities that can't be sustained, the major concern was that no project should have any official credibility in the system and many resources are intentionally not used. Anything done by a project is temporary and 'external' to the institution. The sense of ownership was carried to extremes in which the institution was equated with self, and only those interests that led to individual gains were accorded links. Advantages for others were considered external and irrelevant. And this was true for either those who wanted to sustain apartheid advantages or those who wanted to gain individual advantages denied under apartheid. The result is a highly politicized environment, accentuating the four I's of Carol Weiss: interests, ideology, information, and institution.[36] The most underrepresented constituency in this arrangement was the learner. Ironically, this is often, if not usually, the case.

At least in rhetoric, the underpinning philosophy of Namibian education is constructivism. The wisdom of constructivism is obscure to those who equate it with an old, tainted philosophical position that over-emphasizes the importance of individuals and de-emphasizes the reality of a shared world. In education, it was a post-modernist reaction to the rigidity and authority of teacher-centered approaches to instruction, where teachers presumed to be the repositories of truth and knowledge. Although teacher-centered approaches were never done very well (that is, there were/are few good lecturers, like Stephen Jay Gould and the like), we concluded that it wasn't a good methodology, and that conclusion may have some validity for mass education where few 'lecturers' of note are likely to spontaneously emerge. Many of the ideas that have evolved from neo-constructivism have been useful, particularly those that focus on the classroom and endeavor to make it a more interesting place. But many of the underlying tenets reject much of the progress we have made, particularly in the sciences, where some of the looseness of constructivism is most obvious and its damage clearest.

We owe this movement to a postmodern interpretation of Piaget's work in concept learning and the two 18th-century philosophers, Giambattista Vico and George Berkeley,

[36] Carol H. Weiss (1995). "The Four I's of School Reform: How Interests, Ideology, Information, and Institution Affect Teachers and Principals," *Harvard Education Review*, **65** (4): 571-592.

who opposed the scientific revolution.[37] The search for truth becomes an illusion, and all knowledge searches are equated, such that individualistic models replace 'truths.' This powerful antiscience ideology now controls American education, and importantly, for this study, Namibian education.[38] In this approach, scientific knowledge becomes accessible to anyone, simply by inquiry and discovery. But it's difficult to imagine the equivalence of the situation of children in northern Namibia and those elsewhere. They will not 'discover' Archimedes' principle on their own, even if guided through inquiry—the learners simply won't have the foundation concepts to undertake the task. Cromer reports on an attempt to teach 'buoyancy' through a constructivist approach.[39] The problem is that neither the teacher nor the student is an Archimedes. The support and structure required is much greater than that ordinarily provided in a constructivist approach. For our purposes it suffices to note that the constructivist approach is less structured and less directive than that implied in a SIMs approach or any highly structured method, and this element of ambiguity in the hands of unmotivated teachers in resource poor environments does not lead to high quality mass education. Worse, this approach contributes to the demise of sustainable quality. The workload is too great (or perceived to be) and the continual effort needed is too significant for teachers to sustain their interests or efforts in constructivist classrooms in northern Namibia or similar contexts.

There is an impact in ambiguous or competing goal situations, however. The four I's of Weiss and the new attraction of constructivism lend themselves to the promotion of strange loops, recursive traps that defeat progress and bring us back to the beginning of our endeavors facing the same dilemmas. Look at the logic of the SIMs endeavor. A large investment is made in educational reform in the north of Namibia using a reliable and effective approach to improve the instructional effectiveness of low-resource classrooms at relatively low development costs. The purpose is to improve the quality of the schools in basic skills and knowledge. Then, once accomplished and verified, as expected, the program is removed for a less structured approach, with materials that are 'confusing,' ambiguous in structure, and not necessarily tailored to the philosophical preferences of Namibia or the context, and left to teachers, who have a few more years of education and some training, of mixed relevance to the classroom requirements of these schools. This is an intentional strange loop. We establish what is taken as improved quality and then replace the reform with another one that wasn't considered appropriate in the first place in these conditions. We lose all gains and revert to those effects attributable to teaching only (an ironic reliance on teacher-centeredness). By limiting monitoring and evaluation, we also lose the information that might have helped us in building a better program or integrating gains.

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[37] Michael R. Matthews (1993). "Constructivism and Science Education: Some Epistemological Problems," *Journal of Science Education and Technology*, **2**: 359-370.

[38] Although essentially antiscientific, science educators have endorsed the 'active' learner notions, and many 'constructivists' are less wedded to the philosophy and more attached to the engagement emphasis in instruction. Perhaps clearer links will emerge over time. Stephen Toulmin has suggested using the word 'construal' to soften the implications of construction.

[39] Alan Cromer, *Connected Knowledge: Science, Philosophy, and Education* (New York: Oxford Press, 1997), pp.12-22.

Implicit in strange loops is the notion of infinity—in this case, the continual reform of the system and the maintenance of part of the system at a low level of quality, on nearly any educational criteria. Gains are ignored to sustain the ideology. The ideology contains the ingredients for ambiguity that will never lead, almost by definition, to any distinct notion of progress. There can never be an inviolable level to which to appeal for the criteria of development. All individuals construct their own notions of truth, with little skill or knowledge base. Each individual is different. Each individual holds a different truth. Therefore, there is no truth. But what if there is at least an instructional truth that holds in most cases (we won't stretch the argument here and settle for a kind of Newtonian-level of truth). The underpinning of the instructional program becomes a self-referential code of classroom and instructional conduct that begets strange loops. It is peculiar to recognize that even in high-need situations, we work against ourselves intentionally because of other interests. But we can discuss this again after the next reform…